

are often focused on one or few indications, that multiple applications of an innovative therapeutic mechanism they discovered will be found and exploited by others.

4.3 In-House and Outsourced Research, Academic Collaborations, and Consortia

Recently a trend has been seen in some large pharmaceutical companies to outsource increasing parts of their research activities under the assumption that they can buy the research products that they need for their commercial success. If the aim is a short-term improvement of the bottom line, then such a systematic outsourcing of research might be successful. If the longer survival of the company is the goal, then the outsourcing strategy might be a bad idea. Biomedical sciences and technologies are highly multidisciplinary scientific activities where the knowledge increases exponentially as was illustrated earlier in this chapter with the evolution of the knowledge about receptors, proteins, and pathways within the last 50 years. The same applies to causes of diseases. In order to understand and make use of the evolving knowledge for significant medical advances, there is only one way: participating in the science with your own scientists. People not participating cannot reach the level of understanding, and even if they tried to reconstruct it from the literature, they would have a significant time disadvantage in addition. Unless a company has a critical mass of scientists participating in all the areas it considers strategic, it will not be able to recognize where to “buy” in a timely and competitive way leading to a continued erosion of their pipeline.

A second essential reason why a critical mass of own scientific research is needed is that many or most of the technological and basic scientific breakthrough needed for pharmaceutical breakthrough relevant for patients occur at academic institutions. As mentioned the only way to recognize and understand the relevant science in a timely fashion the industrial scientists needs to be in close interaction and collaboration with academic scientists so that they will be able to translate the academic breakthroughs into medical breakthroughs which is the only goal of industrial biomedical scientists. Successfully achieving this goal is the only strategy ensuring the long-term success and survival of the company while delivering an essential service to patient and society.

Some scientific questions are too complex to be solved by individual scientists and small laboratories. Examples are systems biology or the quantitative description of cellular-, tissue-, organ-, or entire-organism processes to allow computer simulations that are adequate to predict how these systems will behave. Other examples are the Human Brain Project of the EU or The Cancer Genome Atlas of the USA. These projects are big science projects only possible if large numbers of scientists agree on complementary work programs, data standards, and common database formats. Such topics are sometimes addressed by consortia in public-private partnerships. One directly relevant to drug discovery is the “The Biomarkers Consortium” (Wholley 2014) where scientists from academia, the pharmaceutical